

# **INTEGRAL ASSESSMENT OF THE COMPETITIVENESS OF UKRAINIAN-MADE CARS (COMPARED WITH THE DIRECT COMPETITORS ON THE AUTOMOBILE MARKET)**

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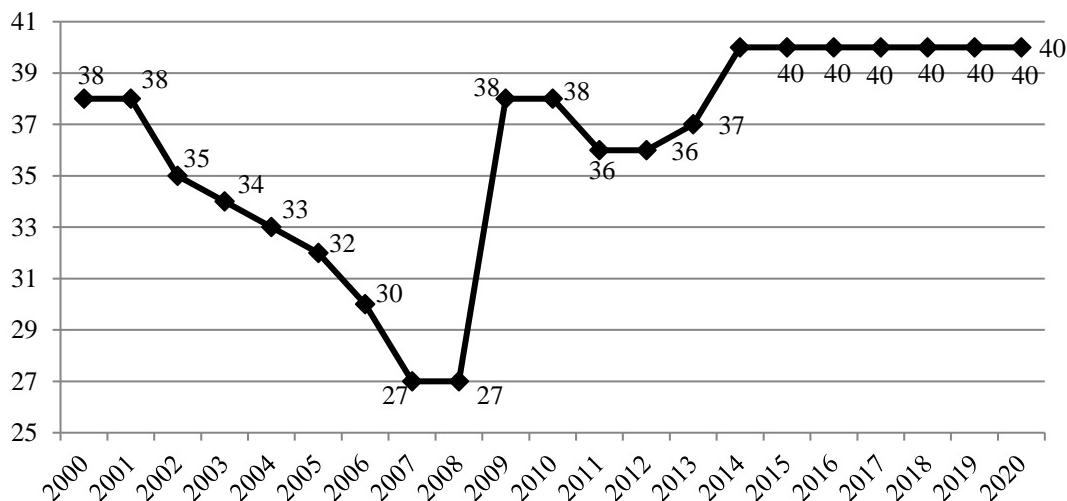
**Abstract:** The article provides an integral assessment of the competitiveness of Ukrainian-made cars (compared with the direct competitors on the automobile market). An integral assessment of the competitiveness of Ukrainian-made cars compared with the direct competitors on the automobile market (for ZAZ Lanos – Hyundai Accent and Kia Rio; for ZAZ Lanos Cargo – Bohdan-2310 pickup and IZH 27175; for ZAZ Sens – Geely CK and Bohdan-2110; for ZAZ Forza – Chevrolet Aveo and Hyundai Accent; for ZAZ Vida – Fiat Albea and Bohdan-2111; for Bohdan-2110 – Geely CK and ZAZ Sens; for Bohdan-2111 – Fiat Albea and ZAZ Vida; for Bohdan-2310 pickup – ZAZ Lanos Cargo and IZH 27175; for Bohdan 2312 – ZAZ Lanos Cargo and IZH 27175) is based on an expert method. The ranks (I; II; III) provided by 15 experts are subjected to the normalization procedure, and a single synthetic rank is formed from the normalized ranks according to a certain comparative criterion. Comprehensive indicator of the competitiveness of cars in terms of non-price parameters is formed from the obtained synthetic ranks according to the comparative criteria “quality”, “assortment (modifications)” and “service maintenance”. The integral indicator of the competitiveness of cars is obtained by synthesizing the values of complex indicators according to the price parameter and non-price parameters. The medium level of competitiveness of Ukrainian-made cars (an exception is ZAZ Lanos, which demonstrates a high level of competitiveness) on the automobile market is determined by: mostly constructive influence of the “Price” and “Service maintenance” parameters; mostly destructive influence of the “Quality” and “Assortment

(modifications)" parameters. The prospects for increasing the competitiveness of Ukrainian-made cars are: maintaining of the competitive positions by the "Price" and "Service maintenance" parameters; improvement of competitive positions by the "Quality" and "Assortment (modifications)" parameters.

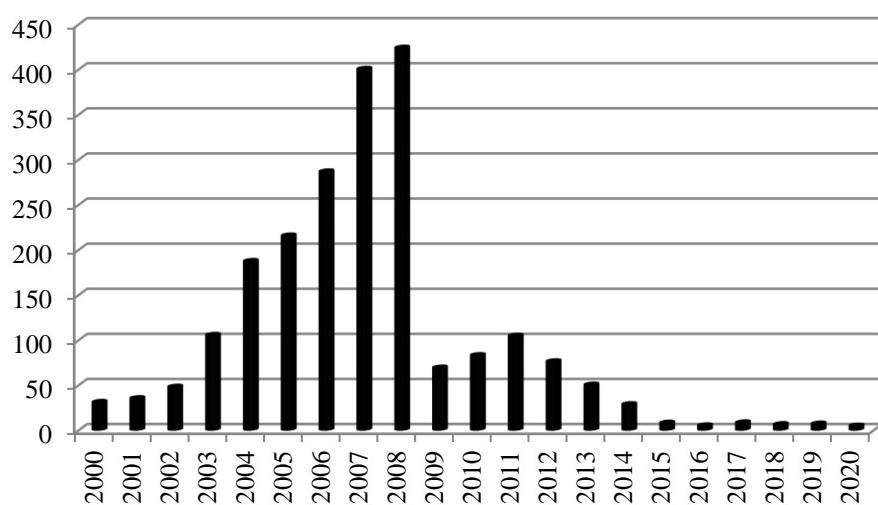
**Keywords:** competitiveness, competitor, car, automobile market, integral assessment, expert method.

## 1. Introduction

Today, hardly anyone will mention Ukraine when listing the leaders of the world automotive industry. China, USA, Japan, Germany, India, South Korea... But not Ukraine. Ukraine still retains its place in the top 40 car-producing countries (Fig. 1), but, let's be honest: Ukraine's place in this ranking in the last decade is purely symbolic in view of the decline in the volume of car production (Fig. 2).



**Figure 1.** The place of Ukraine among the top 40 car-producing countries [1-21]



**Figure 2.** The volume of car production in Ukraine, thousands of cars [1-21]

Even on the national automobile market, Ukrainian-made cars lose in the competitive battle with the foreign competitors. In previous studies [22-26], it was proven that Ukrainian-made cars are gradually displaced from the national automobile market by the Renault, Toyota, Kia, Skoda, Hyundai, Nissan, Chery, Mitsubishi, Volkswagen, Suzuki, Peugeot and Mazda cars brands.

At the same time, Ukrainian-made cars are cheaper than cars produced by foreign concerns. But the price is only one of the competitive advantages of car. Equally important are the non-price parameters of competitiveness of cars. It is proposed to attribute "quality", "assortment (modifications)" and "service maintenance" as the non-price parameters of competitiveness of cars [27].

Based on the polyparametric nature of competitiveness of cars, we consider it appropriate to use an integrated approach to compare Ukrainian-made cars with their direct competitors on the automobile market.

## **2. The purpose of the study**

The purpose of the article is to carry out an integral assessment of the competitiveness of Ukrainian-made cars (compared with the direct competitors on the automobile market).

## **3. Research results**

Today, the production of cars in Ukraine is ensured mainly by three enterprises – PJSC "ZAZ", "Bohdan" corporation and PrJSC "Evrocar".

PJSC "ZAZ" presents cars of the ZAZ brand of the same models: Lanos; Lanos Cargo; Sens; Forza; Vida. According to basic characteristics, the direct competitors of these cars on the automobile market are: for ZAZ Lanos – Hyundai Accent and Kia Rio; for ZAZ Lanos Cargo – Bohdan-2310 pickup and IZH 27175; for ZAZ Sens – Geely CK and Bohdan-2110; for ZAZ Forza – Chevrolet Aveo and Hyundai Accent; for ZAZ Vida – Fiat Albea and Bohdan-2111.

"Bohdan" corporation presents cars of the Bohdan brand of the same models: Bohdan-2110; Bohdan-2111; Bohdan-2310 pickup; Bohdan 2312. According to basic characteristics, the direct competitors of these cars on the automobile market are: for Bohdan-2110 – Geely CK and ZAZ Sens; for Bohdan-2111 – Fiat Albea and ZAZ Vida; for Bohdan-2310 pickup – ZAZ Lanos Cargo and IZH 27175; for Bohdan 2312 – ZAZ Lanos Cargo and IZH 27175.

PrJSC "Evrocar" does not produce cars, but only provides large-unit assembly of cars of the Czech car brand "Škoda" of the same models: Octavia; Fabia; Rapid; Superb; Yeti; Karoq; Kodiaq. Since PrJSC "Evrocar" is not a car manufacturer in the classical sense, in our study we will not conduct an integral assessment of the competitiveness of Škoda brand cars.

An integral assessment of the competitiveness of Ukrainian-made cars compared with the direct competitors on the automobile market will be based on an expert method. The ranks (I; II; III) provided by 15 experts are subjected to the normalization

procedure, and a single synthetic rank is formed from the normalized ranks according to a certain comparative criterion. At the same time, a comprehensive indicator of the competitiveness of cars in terms of non-price parameters is formed from the obtained synthetic ranks of cars according to the comparative criteria “quality”, “assortment (modifications)” and “service maintenance”. The value of the integral indicator of the competitiveness of cars was obtained by synthesizing the values of complex indicators according to the price parameter and non-price parameters.

Results of the integral assessment of the competitiveness of Ukrainian-made cars (compared with the direct competitors on the automobile market) are presented in the table 1.

**Table 1.**  
Results of the integral assessment of the competitiveness of Ukrainian-made cars  
(compared with the direct competitors on the automobile market)

Continuation of Table 1.

Models of cars	Ranks given by experts to cars														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>Parameter # 4. Service maintenance</b>															
ZAZ Lanos	II	III	I	II	III	I	II	III	III	II	I	II	III	II	I
Hyundai Accent	I	I	II	I	II	II	I	I	II	I	III	I	II	I	II
Kia Rio	III	II	III	III	I	III	III	II	I	III	II	III	I	III	III
Standard rank	0,50	0,33	1,00	0,50	0,33	1,00	0,50	0,33	0,33	0,50	1,00	0,50	0,33	0,50	1,00
Synthetic rank = 0,58															
Complex indicator by non-price parameters = 0,41															
Integrated index of competitiveness of ZAZ Lanos = 0,71															
The level of competitiveness of ZAZ Lanos – “high” (0,71 > 0,67)															
<b>Parameter # 1. Price</b>															
ZAZ Lanos Cargo	III	III	III	III	III	III	III	III	III	III	III	III	III	III	III
Bohdan-2310 pickup	II	II	II	II	II	II	II	II	II	II	II	II	II	II	II
IZH 27175	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Standard rank	0,33														
Synthetic rank = 0,33															
Complex indicator by “Price” parameter = 0,33															
<b>Parameter # 2. Quality</b>															
ZAZ Lanos Cargo	II	I	III	III	II	I	II	I	III	II	I	II	II	I	II
Bohdan-2310 pickup	III	III	II	II	III	III	III	III	II	III	II	III	III	II	III
IZH 27175	I	II	I	I	I	II	I	II	I	I	III	I	III	I	II
Standard rank	0,50	1,00	0,33	0,33	0,50	1,00	0,50	1,00	0,33	0,50	1,00	0,50	0,50	1,00	0,50
Synthetic rank = 0,63															
<b>Parameter # 3. Assortment (modifications)</b>															
ZAZ Lanos Cargo	I	II	I	III	I	II	II	I	III	II	II	I	III	II	I

## Continuation of Table 1.

Continuation of Table 1.

Models of cars	Ranks given by experts to cars														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>Parameter # 3. Assortment (modifications)</b>															
ZAZ Sens	II	I	II	II	II	I	II	II	III	I	II	I	II	II	III
Geely CK	I	II	I	I	I	II	I	I	I	II	I	III	II	I	I
Bohdan- 2110	III	III	III	III	III	III	III	III	II	III	III	II	III	III	II
Standard rank	0,50	1,00	0,50	0,50	0,50	1,00	0,50	0,50	0,33	1,00	0,50	1,00	1,00	0,50	0,33
<b>Synthetic rank = 0,64</b>															
<b>Parameter # 4. Service maintenance</b>															
ZAZ Sens	II	I	II	II	I	II	I	II	I	I	II	I	II	I	II
Geely CK	I	II	I	I	II	I	II	I	III	II	I	II	III	I	II
Bohdan- 2110	III	III	III	III	III	III	III	III	II	III	III	II	III	III	III
Standard rank	0,50	1,00	0,50	0,50	1,00	0,50	1,00	0,50	1,00	1,00	0,50	1,00	1,00	0,50	1,00
<b>Synthetic rank = 0,77</b>															
<b>Complex indicator by non-price parameters = 0,65</b>															
<b>Integrated index of competitiveness of ZAZ Sens = 0,64</b>															
<b>The level of competitiveness of ZAZ Sens – “medium” (<math>0,33 &lt; 0,64 &lt; 0,67</math>)</b>															
<b>Parameter # 1. Price</b>															
ZAZ Forza	II	I	II	I	I	I	II	I	II	I	I	III	II	II	I
Chevrolet Aveo	I	II	I	II	II	III	III	II	I	III	II	II	I	III	II
Hyundai Accent	III	III	III	III	III	II	I	III	III	II	III	I	III	I	III
Standard rank	0,50	1,00	0,50	1,00	1,00	1,00	0,50	1,00	0,50	1,00	0,50	0,33	0,50	0,50	1,00
<b>Synthetic rank = 0,76</b>															
<b>Complex indicator by “Price” parameter = 0,76</b>															
<b>Parameter # 2. Quality</b>															
ZAZ Forza	III	III	III	III	III	III	III	III	III	III	III	III	III	III	III
Chevrolet Aveo	I	I	II	I	II	I	I	II	I	I	II	II	I	II	I

## Continuation of Table 1.

Continuation of Table 1.

Models of cars	Ranks given by experts to cars														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>Parameter # 2. Quality</b>															
ZAZ Vida	II	III	II	III	II	II	III	III	II	III	II	III	II	III	II
Fiat Albea	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Bohdan- 2111	III	II	III	II	III	III	II	II	III	II	III	II	III	II	III
Standard rank	0,50	0,33	0,33	0,50	0,50	0,50	0,33	0,33	0,33	0,33	0,33	0,33	0,33	0,33	0,50
<b>Synthetic rank = 0,42</b>															
<b>Parameter # 3. Assortment (modifications)</b>															
ZAZ Vida	II	II	II	III	II	III	III	II	III	II	III	II	III	II	III
Fiat Albea	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Bohdan- 2111	III	III	III	II	III	II	II	III	II	III	II	III	II	II	II
Standard rank	0,50	1,00	0,50	0,50	0,33	0,50	0,33	0,50	0,33	0,50	0,33	0,50	0,33	0,50	0,33
<b>Synthetic rank = 0,44</b>															
<b>Parameter # 4. Service maintenance</b>															
ZAZ Vida	III	III	II	II	III	II	III	II	III	II	II	III	II	III	III
Fiat Albea	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Bohdan- 2111	II	II	III	III	II	III	II	II	III	II	III	II	II	II	II
Standard rank	0,33	0,33	0,50	0,50	0,33	0,50	0,33	0,50	0,33	0,50	0,33	0,50	0,33	0,50	0,33
<b>Synthetic rank = 0,41</b>															
<b>Complex indicator by non-price parameters = 0,42</b>															
<b>Integrated index of competitiveness of ZAZ Vida = 0,61</b>															
<b>The level of competitiveness of ZAZ Vida – “medium” (<math>0,33 &lt; 0,61 &lt; 0,67</math>)</b>															
<b>Parameter # 1. Price</b>															
Bohdan- 2110	I	II	I	I	II	I	III	II	I	I	I	I	II	I	I
Geely CK	III	III	III	III	III	III	I	III							
ZAZ Sens	II	I	II	II	I	II	II	I	II	II	II	II	I	II	II
Standard rank	1,00	0,50	1,00	0,50	1,00	0,50	0,33	0,50	1,00	0,50	1,00	0,50	0,50	1,00	0,50

Continuation of Table 1.

Models of cars	Ranks given by experts to cars														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Synthetic rank = 0,82															
Complex indicator by "Price" parameter = 0,82															
Parameter # 2. Quality															
Bohdan-2110	II	III	II	III	I	III	III	II	III	III	II	III	III	III	III
Geely CK	I	I	I	I	III	II	I	I	I	I	II	I	I	II	I
ZAZ Sens	III	II	III	II	I	II	III	II	II	II	I	III	II	I	II
Standard rank	0,50	0,33	0,50	0,33	1,00	0,33	0,33	0,33	0,33	0,33	0,33	0,50	0,33	0,33	0,33
Synthetic rank = 0,42															
Parameter # 3. Assortment (modifications)															
Bohdan-2110	III	III	III	III	III	III	III	III	II	III	III	II	III	III	II
Geely CK	I	II	I	I	I	II	I	I	I	II	I	III	II	I	I
ZAZ Sens	II	I	II	II	II	I	II	II	III	I	II	I	I	II	III
Standard rank	0,33	0,33	0,33	0,33	0,33	0,33	0,33	0,33	0,50	0,33	0,33	0,50	0,33	0,33	0,50
Synthetic rank = 0,36															
Parameter # 4. Service maintenance															
Bohdan-2110	III	III	III	III	III	III	III	III	II	III	III	III	II	III	III
Geely CK	I	II	I	I	II	I	II	I	III	II	I	II	III	I	II
ZAZ Sens	II	I	II	II	I	II	I	II	I	I	II	I	I	II	I
Standard rank	0,33	0,33	0,33	0,33	0,33	0,33	0,33	0,33	0,50	0,33	0,33	0,50	0,33	0,33	0,33
Synthetic rank = 0,35															
Complex indicator by non-price parameters = 0,38															
Integrated index of competitiveness of Bohdan-2110 = 0,60															
The level of competitiveness of Bohdan-2110 – "medium" ( $0,33 < 0,60 < 0,67$ )															
Parameter # 1. Price															
Bohdan-2111	III	III	II	III	II	III	III	II	III	III	III	III	III	II	III
Fiat Albea	I	II	III	II	III	I	II	III	I	II	I	II	I	III	I
ZAZ Vida	II	I	I	I	I	II	I	I	II	I	II	I	II	I	II

## Continuation of Table 1.

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Models of cars	Ranks given by experts to cars														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IZH 27175	III	II	III	III	III	II	II	III	II	III	III	II	III	III	II
Standard rank	0,50	0,33	0,50	0,50	0,50	0,33	0,33	0,50	0,33	0,50	0,50	0,33	0,50	0,50	0,33
Synthetic rank = 0,43															
Complex indicator by non-price parameters = 0,40															
Integrated index of competitiveness of Bohdan 2312 = 0,42															
The level of competitiveness of Bohdan 2312 – “medium” ( $0,33 < 0,42 < 0,67$ )															

From the data in the table 1, we see that Ukrainian-made cars are mostly characterized by the medium level of competitiveness on the automobile market. An exception is ZAZ Lanos, which demonstrates a high level of competitiveness on the automobile market.

Let's define the key parameters, which determined by their constructive, neutral or destructive influence the level of competitiveness of Ukrainian-made cars (compared with the direct competitors on the automobile market) (table 2).

**Table 2.**  
Key parameters, which determined by their constructive, neutral or destructive influence the level of competitiveness of Ukrainian-made cars

Models of cars	Parameters				
	Price	Quality	Assortment (modifications)	Service maintenance	
1	2	3	4	5	
ZAZ Lanos:					
- level of competitiveness	<i>h</i>	<i>l</i>	<i>l</i>	<i>m</i>	
- influence	<i>c</i>	<i>d</i>	<i>d</i>	<i>d</i>	
ZAZ Lanos Cargo:					
- level of competitiveness	<i>l</i>	<i>m</i>	<i>h</i>	<i>h</i>	
- influence	<i>d</i>	<i>c</i>	<i>c</i>	<i>c</i>	
ZAZ Sens:					
- level of competitiveness	<i>m</i>	<i>m</i>	<i>m</i>	<i>h</i>	
- influence	<i>n</i>	<i>d</i>	<i>n</i>	<i>c</i>	
ZAZ Forza:					
- level of competitiveness	<i>h</i>	<i>l</i>	<i>l</i>	<i>l</i>	
- influence	<i>c</i>	<i>d</i>	<i>d</i>	<i>d</i>	

Continuation of Table 2.

1	2	3	4	5
ZAZ Vida: - level of competitiveness - influence	<i>h</i> <i>c</i>	<i>m</i> <i>d</i>	<i>m</i> <i>d</i>	<i>m</i> <i>d</i>
Bohdan-2110: - level of competitiveness - influence	<i>h</i> <i>c</i>	<i>m</i> <i>d</i>	<i>m</i> <i>d</i>	<i>m</i> <i>d</i>
Bohdan -2111: - level of competitiveness - influence	<i>m</i> <i>d</i>	<i>m</i> <i>n</i>	<i>m</i> <i>c</i>	<i>m</i> <i>c</i>
Bohdan-2310 pickup: - level of competitiveness - influence	<i>m</i> <i>d</i>	<i>m</i> <i>d</i>	<i>h</i> <i>c</i>	<i>h</i> <i>c</i>
Bohdan 2312: - level of competitiveness - influence	<i>m</i> <i>n</i>	<i>m</i> <i>d</i>	<i>m</i> <i>n</i>	<i>m</i> <i>c</i>

In table 2: *h* – high; *m* – medium; *l* – low; *c* – constructive; *n* – neutral; *d* – destructive.

#### 4. Conclusions.

The medium level of competitiveness of Ukrainian-made cars (an exception is ZAZ Lanos, which demonstrates a high level of competitiveness) on the automobile market is determined by: mostly constructive influence of the “Price” parameter and “Service maintenance” parameter; mostly destructive influence of the “Quality” parameter and “Assortment (modifications)” parameter. Thus, the prospects for increasing the competitiveness of Ukrainian-made cars are: maintaining of the competitive positions by the “Price” and “Service maintenance” parameters; improvement of competitive positions by the “Quality” and “Assortment (modifications)” parameters.

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